DETAILED ACTION

Claim Objections

1. Claim 23 is objected to because of the following informalities:

As of claim 23, it should be dependent on claim 17. For the purpose of examination the Examiner is considering the claim 23 as being dependent on claim 17.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the phrase "or other" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "or ohter"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

Claim 9 recites the limitation "the time domain signal" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 2, 4, 7-9, 13, 14, 17, 18, 20, 23-25, 29, 30, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berberich et al. (6,317,035) in view of Ilg (7,176,783).

As of claims 1, 9, 17, 25, Berberich discloses a passive access system to enable an authorized user access or entry to a restricted location, area, vehicle, machine or equipment (via disclosing a passive entry system for vehicle; see col. 1, lines 8-16), comprising: a base station;

initiation means to initiate an access communications protocol, the protocol including the transmission by the base station of one or more actuating signals (via security appliance 2 in the vehicle (see col. 4, lines 60-63) having a door sensor 12 which is operated to transmit a challenge signal; see fig. 1; also see col. 5, lines 13-20) ;

one or more transponder means each responsive to the actuating signal to transmit an individual coded response signal (via multiple transponders (1a to 1c) in the vicinity of

the security device 2 transmitting response signals; see fig. 2; also see col. 5, line 59-64);

processor means to process the received response signals to develop an identification of the individual received response signals (via computation unit 7 in security device 2 evaluating the response signals 16a to 16c received, to develop an identification of the received response signals; see col. 6, lines 14-20); and

the base station selecting one of the identified response signals and authenticating the transponder responsible for the transmission of that selected response signal (via security device 2 selecting the radio key 1a and authenticating the radio key 1a; see col. 6, lines 19-26).

However Berberich fails to explicitly disclose that computation unit 7 in the security device 2 performs a Fourier or other spectral analysis on the received response signals.

IIg discloses a base unit 1 inside a vehicle which receives the signals from plurality of key unit 100 (see fig. 1 and 2; also see col. 7, lines 14-22). IIg further discloses that an evaluating and control unit 3 in the base unit 1, carry out a Fourier transform on the signals received from a plurality of key units 100 (see col. 7, lines 23-28).

From the teaching of IIg it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Berberich to include the step of performing the Fourier transform on the signals received from

plurality of key fobs as taught by Ilg in order to separate the individual signals from the plurality of key fobs (see col. 7, lines 31-33).

As of claims 2, 18 Berberich discloses that the initiation means includes an electrical switch associated with a door handle such that relative movement of the door handle initiates the access communications protocol (via a sensor 12 arranged on a door handle initiating the communication when the handle is operated; see col. 5, lines 6-8).

As of claims 4 and 20, Berberich discloses that the initiation means includes proximity sensors in or on a vehicle that senses a person contacting the vehicle (via sensor 12, sensing when a person contacts the vehicle door handle; see col. 5, lines 6-8).

As of claims 7, 23, Berberich discloses that the response signal transmitted by each transponder is received and processed by an RF receiver and demodulator associated with the base station (via security device 2 comprising a receiver. Note: even though not explicitly said the security device 2 of Berberich has to have a demodulator to demodulate the received modulated signal from key fob 1a (see col. 6, lines 56-58).

As of claims 8, 24, Ilg discloses that the demodulated, composite signal is then processed by the base station signal processor which performs a spectral analysis thereon (see col. 7, lines 23-34).

As of claims 13 and 29, Berberich discloses that after selecting one of the identified response signals, the base station is tuned to the unique identification signal of the selected transponder for authentication (via security device 2 selecting radio key

1a and waiting to receive an enable signal from the radio key 1 only; see col. 6, lines 20-26).

As of claims 14 and 30, Berberich discloses that, in the authentication process, a unique authentication code to which only the selected transponder will respond is transmitted by the base station and the coded response is used for access authorization (via security device transmitting an interrogation signal including a code, and the radio key comparing the code before transmitting a response signal; see col. 10, lines 10-14, further note that radio key 1 and security device 2, comprise a random number generator 6 and 15 respectively, and each generate random number generator operates identically, so the number generated by random number will have to match before security device 2 or radio keys transmit an signal to each other).

As of claim 33, Ilg discloses that actuating signal is transmitted at predetermined intervals (via base unit 1 transmitting the signal at predetermined time intervals; see col. 7, lines 14-16).

As of claim 34, Ilg discloses that the analysis carried out on the received response signals separates the individual spectral components of the signals into separate, identifiable signals representative of individual transponder response signals (via evaluating and control unit 3 in the base unit 1 separating the individual signals; see col. 7, lines 30-35).

6. Claims 3, 5, 19 and 21, are rejected under 35 U.S.C. 103(a) as being unpatentable over Berberich et al. (6,317,035) in view of Ilg (7,176,783) and further in view of Okada et al. (6,552,649).

As of claims 3, 5, 19 and 21 the combination of Berberich and Ilg discloses all the limitations of the claimed invention as mentioned in claim 1 above, but fails to explicitly disclose that the proximity sensor sensing the presence of a person adjacent the vehicle and the actuating signal transmitted by the base station is LF signal having a field range of between 0.5 and 3 meters.

Okada discloses that a vehicle control system (see fig. 1) comprises a body detection sensor, which senses the presence of a person adjacent the vehicle (see col. 10, liens 14-36). Okada also discloses that a controller 26 (base station) in the vehicle transmits LF signal having a field range of 1 meter (see col. 9, lines 13-25).

From the teaching of Okada it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Berberich and Ilg to include a proximity sensor sensing the person adjacent to the vehicle and further transmitting the signal in a small are as taught by Okada in order to intensively detect a transponder near the vehicle.

7. Claims 6, 10-12, 22 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berberich et al. (6,317,035) in view of Ilg (7,176,783) and further in view of Pavatich et al. (6,765,473).

As of claims 6 and 22, the combination of Berberich and Ilg discloses all the limitation of the claimed invention as mentioned in claim 1 above, Ilg further discloses that the response signal of the key fob comprises a unique code (see col. 3, lines 32-35), however it fails to explicitly disclose that the individual coded response signal is a unique tone or dual tone multiple frequency signal or multiple tones.

Pavatich discloses a passive access system wherein when an electronic key 4, transmit tow fundamental frequency tone 20 and 22 when interrogated by a radio base station 8 of a vehicle (see fig. 1; also see col. 1 line 66 through col. 2, lines 10; and col. 2, lines 44-50).

From the teaching of Pavatich it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Berberich and Ilg to include the step of transmitting unique tones as taught by Pavatich in order to enhance the authentication process of the key fobs.

As of claims 10 and 26, the combination of Berberich discloses that the computation unit 7 evaluates the received signals to determine the number of transponders (see fig. 3; also see col. 6, lines 14-20). Ilg further discloses that if a signal is received from multiple transponders a Fourier transform can be performed to separate the individual signals. And further from the teaching of Pavatich it is clear that a spectral data by using unique tone can be used to identify an individual transponder.

As of claims 11 and 27, the combination of Berberich, Ilg and Pavatich discloses all the limitations of the claimed invention as mentioned in claim 10 above, and Berberich further discloses that the security device 2 in the vehicle determines which radio key has the highest priority to transmit the enable signal to unlock the vehicle doors (see col. 6, lines 14-25).

As of claims 12 and 28, Berberich discloses that since the radio key 1 has a higher priority a selection signal is transmitted to the radio key for the transmission of an enable signal (see col. 6, lines 16-20).

8. As of claims 15, 16, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berberich et al. (6,317,035) in view of Ilg (7,176,783) and further in view of Hacker et al. (6,982,628).

As of claims 15, 16, 31 and 32, Berberich discloses that the authorized user access is to a vehicle and each transponder has unique code (see col. 1, lines 30-34). Pavachi discloses that each key has unique tone for the vehicle (see col. 2, lines 44-54). From the specification of Berberich it can be seen that a security device has multiple keys associated with it (see fig. 2) and the identities of multiple radio keys has to be pre-programmed into the security device memory to uniquely identify each radio key.

Hacker further discloses a device 10, which is an access control system for a motor vehicle (see col. 2, lines 11-14). Hacker further discloses that device 10 has a directory 18 containing the group numbers of actuators 20 (transponder) assigned to device 10. Hacker further discloses that a serial number 16 is characteristic of devices 10 and actuators 20 assigned to each other, which the group numbers are used to distinguish between actuators 20 having the same serial numbers and assigned to a common device 10 (see col. 2, lines 29-36). Hacker further disclsoes that the serial numbers of actuators are defined by the manufacturer and are identical to serial number provided in device 10 (see col. 3, lines 1-6).

From the teaching of Hacker it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Berberich and Ilg to pre-programmed the identities of transponder into the vehicle as taught by

Hacker so an interrogation unit in the vehicle identify a specific transponder if multiple transponder are present in the interrogation field.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NABIL H. SYED whose telephone number is (571)270-3028. The examiner can normally be reached on M-F 7:30-5:00 alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on (571)272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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